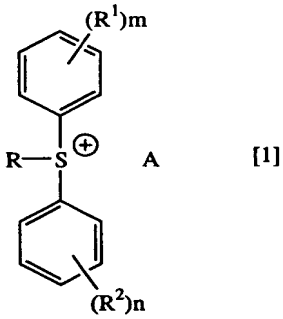
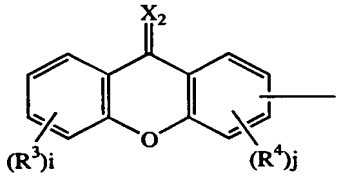
ABSTRACT

The present invention relates to a heterocycle-containing onium salt useful as, for example, a cationic photopolymerization initiator and an acid generator for a chemically amplified resist, and provides "a heterocycle-containing onium salt shown by the general formula [1]:



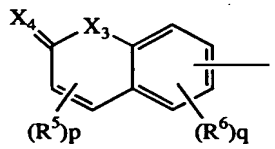
[1]

[wherein R is a group shown by the general formula [2]:



[2]

(wherein R^3 and R^4 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_2 is an oxygen atom or a sulfur atom; i is an integer of 0 to 4; and j is an integer of 0 to 3), or a group shown by the general formula [3]:



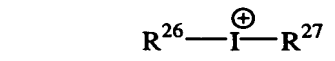
[3]

(wherein R^5 and R^6 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent, or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; X_3 and X_4 are each independently an oxygen atom or a sulfur atom; p is an integer of 0 to 2; and q is an integer of 0 to 3); R^1 and R^2 are each independently a halogen atom, an alkyl group which may have a halogen atom or an aryl group as a substituent,

or an aryl group which may have a halogen atom or a lower alkyl group as a substituent; m and n are each independently an integer of 0 to 5; and A is a halogen atom or an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula [4]:

$HM_1(R^7)_4$ [4]

(wherein M_1 is a boron atom or a gallium atom; and R^7 is an aryl group which may have a substituent selected from a lower haloalkyl group, a halogen atom, a nitro group and a cyano group)]" or "a heterocycle-containing onium salt shown by the general formula [35]:



[35]

[wherein R^{26} and R^{27} are each independently an aryl group which may have a halogen atom or a lower alkyl group as a substituent, a group shown by the above-mentioned general formula [2], or a group shown by the above-mentioned general formula [3]; and A_3 is a halogen atom or an anion derived from an inorganic strong acid, an organic acid or a compound shown by the general formula [4]; and provided that at least one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], and when only one of R^{26} and R^{27} is a group shown by the above-mentioned general formula [2] or [3], A_3 is an anion derived from an inorganic strong acid shown by the general formula [36];

HM_3F_6 [36]

(wherein M_3 is a phosphorus atom, an arsenic atom or an antimony atom), an organic acid or a compound shown by the general formula [4]]".